

## Claims

What is claimed is:

- 1           1.     A method for implementing enhanced query governor functions  
2 comprising the steps of:  
3           checking for a timeout value for a query,  
4           responsive to identifying a timeout value for the query, resetting an  
5 execution time for the query;  
6           starting a monitor for each timeout value for the query;  
7           starting the execution of the query;  
8           monitoring the execution of predefined events during the execution of  
9 the query; said predefined events including a begin or end of processing of  
10 at least one of a trigger and a user defined function (UDF);  
11           periodically checking execution status of the query;  
12           responsive to identifying the query is executing, checking for any  
13 expired timeout value; and  
14           halting the execution of the query responsive to an identified expired  
15 timeout value.
- 1           2.     A method for implementing enhanced query governor functions  
2 as recited in claim 1 wherein the step of starting monitors for each timeout  
3 value for the query includes the step of starting monitors for each UDF and  
4 trigger.
- 1           3.     A method for implementing enhanced query governor functions  
2 as recited in claim 1 wherein the step of monitoring the execution of said  
3 predefined events includes the step of recording each said trigger event start  
4 time and stop time.
- 1           4.     A method for implementing enhanced query governor functions  
2 as recited in claim 1 wherein the step of monitoring the execution of said  
3 predefined events includes the step of recording each said user defined  
4 function (UDF) start time and stop time.

1           5.     A method for implementing enhanced query governor functions  
2 as recited in claim 1 wherein the step of monitoring the execution of said  
3 predefined events includes the step of recording empirical data for said  
4 trigger, and said user defined function (UDF).

1           6.     A method for implementing enhanced query governor functions  
2 as recited in claim 5 includes the step of checking to determine based upon  
3 said recorded empirical data whether in most likelihood that the query can  
4 finish within timeout values for said trigger and said user defined function  
5 (UDF), and responsive to determining in most likelihood the query will not  
6 finish within said timeout values, execution of the query is not started.

1           7.     A method for implementing enhanced query governor functions  
2 as recited in claim 1 includes the step responsive to halting the execution of  
3 the query of, setting return code values for said identified expired timeout  
4 value for processing either said UDF or said trigger.

1           8.     A method for implementing enhanced query governor functions  
2 as recited in claim 1 includes the steps of monitoring events, and responsive  
3 to an event to modify attributes, performing a modify attributes routine.

1           9.     A method for implementing enhanced query governor functions  
2 as recited in claim 8 wherein said modify attributes routine includes the steps  
3 responsive to a monitor being requested, setting a timeout for the monitor.

1           10.    A method for implementing enhanced query governor functions  
2 as recited in claim 8 includes the steps responsive to an event to execute  
3 query, performing an execute query routine.

1           11. Apparatus for implementing enhanced query governor  
2 functions comprising:  
3           a query governor program including a SQL processor program, said  
4 SQL processor program for monitoring events, and said SQL processor  
5 program responsive to an event to modify attributes, performing a modify  
6 attributes routine; and responsive to an event to execute query, performing  
7 an execute query routine; said modify attributes routine including the steps  
8 responsive to a monitor being requested, setting a timeout for the monitor;  
9 and  
10          said query governor program including a user defined function (UDF)  
11 and trigger monitor program; said UDF and trigger monitor program for  
12 monitoring the execution of predefined events during the execution of the  
13 query; said predefined events including a begin or end of processing of at  
14 least one of a trigger and a user defined function (UDF).

1           12. Apparatus for implementing enhanced query governor  
2 functions as recited in claim 11 wherein said SQL processor program  
3 responsive to said event to execute query performing said execute query  
4 routine includes the steps of checking to determine based upon said  
5 recorded empirical data whether in most likelihood that the query can finish  
6 within timeout values for said trigger and said user defined function (UDF),  
7 and only responsive to determining in most likelihood the query can finish  
8 within said timeout values, starting execution of the query.

1           13. Apparatus for implementing enhanced query governor  
2 functions as recited in claim 11 wherein said SQL processor program  
3 responsive to said event to execute query performing said execute query  
4 routine includes the steps of identifying an expired timeout value for said  
5 trigger or said UDF, halting the execution of the query.

1           14.    A computer program product for implementing enhanced query  
2   governor functions in a computer system, said computer program product  
3   including instructions executed by the computer system to cause the  
4   computer system to perform the steps of:  
5           responsive to identifying an execute query event, checking for a  
6   timeout value for a query,  
7           responsive to identifying a timeout value for the query, resetting an  
8   execution time for the query;  
9           starting a monitor for each timeout value for the query;  
10          starting the execution of the query;  
11          monitoring the execution of predefined events during the execution of  
12   the query; said predefined events including a begin or end of processing of  
13   at least one of a trigger and a user defined function (UDF);  
14          periodically checking execution status of the query;  
15          responsive to identifying the query is executing, checking for any  
16   expired timeout value; and  
17          halting the execution of the query responsive to an identified expired  
18   timeout value.

1           15.    A computer program product for implementing enhanced query  
2   governor functions as recited in claim 14 wherein said instructions further  
3   cause the computer system to perform the steps of monitoring events, and  
4   responsive to an event to modify attributes, performing a modify attributes  
5   routine.

1           16.    A computer program product for implementing enhanced query  
2   governor functions as recited in claim 15 wherein said modify attributes  
3   routine includes the steps responsive to a monitor being requested, setting a  
4   timeout for the monitor.

1           17.    A computer program product for implementing enhanced query  
2   governor functions as recited in claim 14 wherein the step of monitoring the  
3   execution of said predefined events includes the step of recording empirical  
4   data for said trigger, and said user defined function (UDF).

1           18.    A computer program product for implementing enhanced query  
2   governor functions as recited in claim 17 includes the steps of checking to  
3   determine based upon said recorded empirical data whether in most  
4   likelihood that the query can finish within timeout values for said trigger and  
5   said user defined function (UDF), and only responsive to determining in most  
6   likelihood the query can finish within said timeout values, starting execution  
7   of the query.